

**REMARKS**

Favorable reconsideration of this application as presently amended and in light of the following discussion is respectfully requested.

Claims 1-13 are pending in the present application. Claims 1-6 are amended and Claims 7-13 are added by the present amendment.

In the outstanding Office Action, the specification was objected to; Claims 1-4 and 6 were rejected under 35 U.S.C. § 102(b) as anticipated by Drumm (U.S. Patent No. 4,872,689); Claims 1-4 and 6 were rejected under 35 U.S.C. § 102(b) as anticipated by Korenblit (U.S. Patent No. 5,125,792); and Claims 1-6 were rejected under 35 U.S.C. § 102(b) as anticipated by Lorenzen (U.S. Patent No. 5,718,560).

Initially, Applicants note that an Information Disclosure Statement (IDS) has been filed on January 2, 2007 and none of the references filed with the IDS have been initialed by the Examiner. The PAIR system indicates the filing of the IDS. Thus, Applicants respectfully request that the next Office Action indicates as acknowledged the references filed with the IDS.

Independent Claim 1 has been amended to more clearly recite the novel features. More specifically, Claim 1 has been amended to recite the at least one inlet duct recited by dependent Claim 5. Thus, this feature has been cancelled from Claim 5. The claim amendments find support in the specification, for example, at page 5, lines 10-15 and also, for example, in Figures 2 and 3. No new matter has been added.

The outstanding rejections on the merits are respectfully traversed for the following reasons.

Briefly recapitulating, amended Claim 1 is directed to a heat exchanger device for a gas seal for a centrifugal compressor. The device includes a fluid heat exchanger positioned between the gas seal of the compressor and a housing wall of the seal and at least one inlet duct configured to supply a blockage gas to the gas seal. The fluid heat exchanger is configured to keep the temperature of the seal low in the case of high temperatures of the wall and/or compressed gas.

Turning to the applied art, it is noted that the outstanding Office Action rejects Claims 1-4 and 6 under 35 U.S.C. 102(b) as anticipated by Drumm and Korenblit. As independent Claim 1 has been amended to recite features of dependent Claim 5, which was not rejected over Drumm or Korenblit, it is believed that amended Claim 1 patentably distinguishes over Drumm and Korenblit at least for this reason.

In addition, with regard to Drumm, it is noted that the outstanding Office Action asserts that element 22 of Drumm is a gas seal. However, Drumm discloses in the paragraph bridging columns 3 and 4 that element 22 is a sleeve and in fact the sealing is achieved by an O-ring seal 24 “located in an annular recess adjacent the inner end of sleeve 22”. Therefore, sleeve 22 of Drumm is not a gas seal and does not correspond to the claimed gas seal.

Further, the O-ring seal 24 is not positioned as claimed and is not cooled by a heat exchanger 12.

Accordingly, it is respectfully submitted that amended Claim 1 and each of the claims depending therefrom patentably distinguish over Drumm.

Korenblit discloses a pump stuffing box having a heat exchange device. However, Korenblit specifically discloses in the Abstract and at column 2, lines 32-42 that the heat exchanger cools the stuffing box 16 and lubricates the mechanical seal 35. In other words, the device of Korenblit is not configured to cool the mechanical seal but to lubricate it. This fact is supported by the arrangement shown in Figure 1 in which the seal 35 is placed away from heat exchanger 7, 10, and 11.

Accordingly, it is respectfully submitted that amended Claim 1 and each of the claims depending therefrom patentably distinguish over Korenblit.

Turning to Lorenzen, this reference discloses a turbo compressor that includes stages 12 and 14 connected to a rotor 13. Ends of the rotor 13 are surrounded by seals 15 and 16 that seal a flow of gas between the rotor and a casing 11. Lorenzen discloses a heating device 18 that "can prevent the temperature of the leakage flow from falling substantially below the temperature which occurs in operation."<sup>1</sup>

Further Lorenzen discloses that the heating device prevents a precipitation of the gas that might happen "at too low temperatures, which is prevented by the heating device **18** shown.<sup>2</sup>

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<sup>1</sup> Lorenzen, column 4, lines 10-14.

<sup>2</sup> Lorenzen, column 4, lines 19-21.

Therefore, Lorenzen discloses a heating device 18 for heating (adding heat) a gas and not for maintaining a temperature of a seal low in case of high temperatures of the wall and/or compressed gas as recited by amended Claim 1.

In other words, the fluid heat exchanger of Claim 1 is used to reduce a temperature of the seal and not to increase a temperature of the seal, which is contrary to Lorenzen.

Accordingly, it is respectfully submitted that amended Claim 1 and each of the claims depending therefrom patentably distinguish over Lorenzen.

New Claims 7-13 have been added to set forth the invention in a varying scope. The added claims find support in the originally filed specification. No new matter has been added. As Claims 7-13 depend from independent Claim 1, which is believed to be allowable as discussed above, dependent Claims 7-13 are also believed to be in condition for allowance.

Accordingly, in light of the above discussion and in view of the enclosed amendments, the present application is believed to be in condition for allowance and an early and favorable action to that effect is respectfully requested. If, however, there are any remaining unresolved issues that would prevent the issuance of the Notice of Allowance, the Examiner is urged to contact the undersigned at (540) 361-2601 in order to expedite prosecution of this application.

Respectfully submitted,  
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